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| [**Home**](http://docs.google.com/home.htm)  [**Abstract**](http://docs.google.com/abstract.htm)  [**Introduction**](http://docs.google.com/introduction.htm)  [**Review of Literature**](http://docs.google.com/literature_review.htm)  [**Procedure**](http://docs.google.com/procedure.htm)  [**Data**](http://docs.google.com/data.htm)  [**Conclusion**](http://docs.google.com/conclusion.htm)  [**Cross Sections**](http://docs.google.com/cross_sections.htm)  [**Journal**](http://docs.google.com/journal.htm)  [**References**](http://docs.google.com/references.htm)  [**bonus..**](http://docs.google.com/bonus.htm)**.** |  | The migration of plants from an aquatic environment to land has required many evolutionary steps. The closest relative to plants outside the plant kingdom are the multicellular green alga, which are classified as protists. It is commonly believed among most botanists that modern plants originated from a type of green algae called charophytes. This hypothesis is supported in the similarities between the genome of charophytes and modern plants, the detail of the sperm ultrastructure, the similar mechanisms of mitosis and cytokinesis, similar amounts of cellulose in their cell walls, and both have chloroplasts that use chlorophyll b and beta-carotene as the accessory pigments for photosynthesis. Recently, February 2000, Claude Lemieux et. Al. Discovered the common ancestor of both plants and charophytes to be a unicellular freshwater alga, *Mesostigma Viride.*  The first modern plants to emerge from the seas were bryophytes, and in many ways the bryophytes were and still are not entirely adapted for land. In order to reproduce bryophytes are dependent on water because they still have the primitive structure of flagellated sperm. An even better example of bryophyte's ties to an aquatic environment can be observed in the complete lack of a vascular system. This is due to the absence of lignified walls in byrophytes. Lignin is an important strengthening tissue found in the secondary cell wall of woody plants. Because of this condition bryophytes must rely on absorbing water from the ground around them, and thus cannot generally grow any taller than one to two centimeters high. Both of these conditions force bryophytes to live in a moist environment. Plants became better suited for land with the emergence of vascular plants.  There are three types of vascular plants: seedless plants (ferns, lycophytes, horsetails), gymnosperms (pines, sequoias, redwoods) and angiosperms (all flowering plants, including radishes). All vascular plants have both a rood and a shoot system. The minerals and water from the soil are absorbed by the root system, and photosynthesis occurs in the leaves and to a lesser extent in the cells of the shoot system. The minerals and water which are absorbed by the root system must have some way of reaching to shoot system, and the glucose made in photosynthesis must have some way of reaching the root system. To complete these tasks vascular plants have a vascular system. The vascular system consists of phloem, which transports the organic materials created during photosynthesis to the roots and other non-photosynthetic areas of the plant, and xylem, which carries the minerals and water collected by the root system to the rest of the plant.  [more...](http://docs.google.com/literature_review_2.htm)  [works cited...](http://docs.google.com/works_cited.htm) |